



| PO No | Supplier | Line Item No | Rel No | Terms | Purchased Item | Description | For Part No | Project | Equipment ID | Order Qty | Due Date | Received Quantity | Accounting Job No | Container No | Status | Receive Date | Price/Unit | Aging Days |
|----------|-----------|--------------|--------|--------|--------------------|---|-------------|---------|--------------|------------|-----------|-------------------|-------------------|--------------|--------|--------------|---------------|------------|
| PO039293 | TWM001-VU | 1 | 1 | Net 30 | M6061T6T0.500W.058 | 6061-T6 Round Tube .500 X.058W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft | | | | 500 | 3/21/2018 | 504 | | S053526 | Stock | 3/21/2018 | \$ 1.75 / ft | 0 |
| | | | | | M304TR0.750W.049 | .304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft | | | | 100 | | 100 | | S053527 | Stock | 3/21/2018 | \$ 2.58 / pcs | 0 |
| | | | | | | | | | | Total: 600 | | 604 | | | | | | |

Plex 3/21/2018 12:58 PM Dart Dubois Pascal



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO039293

| | | | |
|------------------|---|---------------------------------|--|
| Supplier: | TWM001-VU TW Metals PO Box 933014 Atlanta, GA 31193-3014 USA Phone: 585 768 5600 Fax: 585 768 5601 | PO No: | PO039293 |
| | | PO Date: | 3/13/18 |
| | | Due Date: | 3/21/18 |
| | | Purchase Order Revision: | |
| | | Revision Date: | |
| Ship To: | 1270 Aberdeen Street Hawkesbury ON K6A 1K7 Canada Phone: 613-632-5200 | Ship-To Contact: | Lavoie, Chantal Phone: clavoie@dartaero.com |
| | | Via: | Ground |
| | | Pymt Terms: | Net 30 |
| | | Freight Terms: | |
| | | Special Comments: | |



MAR 14 2018

| Items | | | | | | | | | | | |
|-----------|--------------------|------------------|---|--------|----------|----------------|-------------------|---------|------------------|----------------|--|
| Line Item | Part | Supplier Part No | Description | Status | Due Date | Order Quantity | Received Quantity | Balance | Unit Price (USD) | Extended Price | |
| 1 | M6061T6T0.500W.058 | | 6061-T6 Round Tube .500 X.058W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft | Firmed | 3/21/18 | 500 ft | 0 ft | 500 ft | \$1.75/ft | \$875.00 | |
| 2 | M304TR0.750W.049 | | 304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft | Firmed | 3/21/18 | 100 pcs | 0 pcs | 100 pcs | \$2.579/pcs | \$257.90 | |

Grand Total: \$1,132.90

DAS
11
9-89

DAS
11
9-89

Order Notes

Procurement Quality Clauses

- A005 right of entry
- A012 chemical and physical test report
- A016 personnel qualification
- A017 raw material identification (as applicable)
- A026 certification of material conformance
- A041 quality management system
- A042 dart notification by supplier
- A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

CL.



O'Neal High-Performance Metals Group

Packing
Slip

ORDER NO.: 80919474 FROM: CHIC PAGE 1

CUST NUMBER: 1203820 NET WGT: 84.391 REQ. DATE: 03/21/18 CONFIRMED
 SOLD TO: DART AEROSPACE LTD
 DART AEROSPACE LTD
 1270 ABERDEEN ST
 HAWKESBURY ON
 CANADA CN K6A 1K7
 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY
 TERMS: NET 30 DAYS
 F.O.B.: SHIPPING POINT
 CUST ORD NO.: PO039293

SHIP BY: 03/15/18
 VIA: COMMON CARRIER
 FREIGHT: PREPAID
 RELEASE NO.:
 RECEIVING PHONE:

LINE ITEM DESCRIPTION
 0001 42276 D6061-T6 1/2 OD X .058 WA

WIDTH LENGTH
 12 FT ML

| CLN# | ORD QTY | INVOICE QTY | SHIPPED QTY | WT | PCS |
|------|------------|-------------|-------------|--------|-----|
| | 500.000 FT | 504.000 FT | 504.000 FT | 47.719 | 42 |

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
 PO:49380023 HT:F002573770001 PC: 42 CUSTOMER QTY: UOM
 MLT:UNITED STATES MFG:UNITED STATES SLB/CL:224733

0002 36860 SMLS CD 304/L A269 3/4 OD X .049 WA

20' CL

| CLN# | ORD QTY | INVOICE QTY | SHIPPED QTY | WT | PCS |
|------|------------|-------------|-------------|--------|-----|
| | 100.000 FT | 100.000 FT | 100.000 FT | 36.672 | 5 |

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00
 PO:49370276 HT:N170711AS10 PC: 5 CUSTOMER QTY: UOM
 MLT:CHINA MFG:CHINA SLB/CL:-

BROKERS KUEHNE AND NAGEL LTD

| PACK INFO | | | | | |
|-----------|-------------|-------|---------|--------|----------|
| AREA | TYPE OF PKG | PKGS | GRS | WEIGHT | WIDTH |
| YRC | REDDICRATE | 1.000 | 70.000 | 5.0000 | 150.0000 |
| YRC | CARTON | 1.000 | 44.000 | 2.0000 | 246.0000 |
| | | 2.000 | 114.000 | | |

BY: LM

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
 PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
 REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



**Packing
Slip**

ORDER NO.: 80919474 FROM: CHIC PAGE 2

CUST NUMBER: 1203820 NET WGT: 84.391 REQ. DATE: 03/21/18 CONFIRMED
SOLD TO: DART AEROSPACE LTD
DART AEROSPACE LTD
1270 ABERDEEN ST
HAWKESBURY ON
CANADA CN K6A 1K7 SHIP TO: DART AEROSPACE LTD
1270 ABERDEEN ST
HAWKESBURY ON
ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 03/15/18
TERMS: NET 30 DAYS VIA: COMMON CARRIER
F.O.B.: SHIPPING POINT FREIGHT: PREPAID
CUST ORD NO.: P0039293 RELEASE NO.:
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH
RT 000- UNLOAD TYPE: NONE SPECIFIED

DATE SHIPPED _____

1

DATE FILLED

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



**Packing
Slip**

ORDER NO.: 80919474 FROM: CHIC PAGE 3

| | | | | |
|---|----------------|---|---------------------|-----------|
| CUST NUMBER: 1203820 | NET WGT: | 84.391 | REQ. DATE: 03/21/18 | CONFIRMED |
| SOLD TO: DART AEROSPACE LTD 1270 ABERDEEN ST HAWKESBURY ON CANADA | | SHIP TO: DART AEROSPACE LTD 1270 ABERDEEN ST HAWKESBURY ON ONTARIO CANADA | | |
| CN K6A 1K7 | | CN K6A 1K7 | | |
| SALESPERSON: | DONNA SMALLEY | SHIP BY: | 03/15/18 | |
| TERMS: | NET 30 DAYS | 235 TUBEWAY | | |
| F.O.B.: | SHIPPING POINT | CAROL STREAM | IL 60188 | |
| CUST ORD NO.: | PO039293 | | | |
| VIA: | COMMON CARRIER | | | |
| FREIGHT: | PREPAID | | | |
| RELEASE NO.: | | | | |
| RECEIVING PHONE: | | | | |

"TW Metals MSDS data is available on our web site at www.twmetals.com. MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

"CERTIFICATE OF CONFORMANCE"

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Authorized Test Report Clerk

Luziraida Matos

Date: 3/15/18

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: 1606116 to 500W058 PO / BATCH NO. 039293/5053526
 DATE: MAR 21 2018

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 504
 QUANTITY INSPECTED: 504
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.058
 THICKNESS RECEIVED: W.058
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

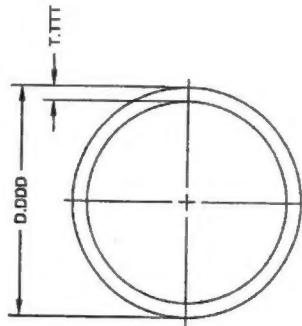
| DESCRIPTION | NCR (Check Y/N) | COMMENTS |
|--|--|---------------------|
| SURFACE DAMAGE | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| CORRECT FINISH | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| CORROSION | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| CORRECT GRAIN DIRECTION | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| CORRECT MATERIAL PER M-DRAWING | <input checked="" type="radio"/> Y <input type="radio"/> N | UW-T-700/6 |
| CORRECT THICKNESS | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| PHOTO REQUIRED | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| CORRECT REF # TO LINK CERT | <input checked="" type="radio"/> Y <input type="radio"/> N | Heat# f002573770001 |
| CORRECT MATERIAL IDENTIFICATION | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| CORRECT M# ON THE MATERIAL | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF | <input checked="" type="radio"/> Y <input type="radio"/> N | |
| DOES THIS REQUIRE AN EXTRUSION REPORT | <input checked="" type="radio"/> Y <input type="radio"/> N | |

| CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW | | | | | |
|--|-----|-----|-------|-------|---------|
| TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING | HRC | HRB | DUR A | DUR D | WEBSTER |
| | | | | | |
| | | | | | |

testers located in the Quality Office

| QC 18 INSPECTION | | ENGINEERING SIGNOFF (if required) | |
|------------------|-------------------------|-----------------------------------|--|
| INSPECTED BY: | <u>DAS</u> <u>11</u> | SIGNED OFF BY: | |
| DATE: | <u>9-89 MAR 21 2018</u> | DATE: | |

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



PURCHASE MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING

SPECIFICATION: WW-T-7006
OR QQA-A-260/8 OR QQA-A-225/8
OR AMS 4080 OR AMS 4082 OR AMS 4083
OR ASTM B210 OR ASTM B241

PART NUMBER: M6061T6TID:DDDWIT:TTT
OD | WALL |

WHERE "D.DDD" = OD IN INCHES

"T.TTT" = WALL THICKNESS

EG. 3/8" OD X 0.058 WALL = M6061T6T0.375W0.058

PER ANSI H35.2

MATERIAL TOLERANCE:

RELEASED
2013-07-02
JM

| COMPLETE REFORMAT, ADDED T6510 & T6511. | | | |
|---|---------------------------------------|----------------|--------------|
| C | ADDED AMS 4083, ASTM B210 & ASTM B241 | AJS | 13.06.12 |
| B | ADDED MATERIAL TOLERANCE | CP | 04.01.23 |
| A | NEW ISSUE | DS | 01.06.21 |
| REV. | DESCRIPTION | BY | DATE |
| | DART AEROSPACE LTD | | |
| | HAWKESBURY, ONTARIO, CANADA | | |
| DRAWN | AJS | | |
| CHECKED | | DRAWING NO. | REV. C |
| MFG. APPR. | | M6061T6T | SHEET 1 OF 1 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 6061-T6 TUBING | NTS |
| DATE | 13.06.12 | | |

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KAISER ALUMINUM
 FABRICATED PRODUCTS, LLC
 6573 W. WILLIS ROAD
 CHANDLER, AZ 85226

| CUSTOMER PO NUMBER: | | CUSTOMER PART NUMBER: | | PRODUCT DESCRIPTION: | | | | | | |
|---|-------------|---|--------------------|--------------------------|-----------|--|--|--|--|--|
| M49380023-1 | | 42276 | | Drawn Seamless Tube/Pipe | | | | | | |
| KAISER ORDER NUMBER: | LINE ITEM: | SHIP DATE: | KAISER LOT NUMBER: | ALLOY: | TEMPER: | | | | | |
| 224733 | 001 | 12/18/2017 | F00257377 | 6061 | T6 | | | | | |
| WEIGHT SHIPPED: | QUANTITY: | B/L NUMBER: | DIAM/IDAF/THKNS: | WIDTH: | LENGTH: | | | | | |
| 535.000 LB | 469.000 PCS | 227858 | | | 12.000 FT | | | | | |
| SHIP TO: | | SOLD TO: | | | | | | | | |
| TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA | | TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA | | | | | | | | |

Actual Physical Properties

| REFERENCE | DASH# | SAMPLE# | UTS (KSI) | YTS (KSI) | ELONG% | HARDNESS | CON%IACS | BEND |
|-----------|-------|---------|-----------|-----------|--------|----------|----------|------|
| F00257377 | 0001 | 1 | 47.1 | 42.3 | 16.0 | N/A | N/A | N/A |
| F00257377 | 0002 | 1 | 47.3 | 41.8 | 18.0 | N/A | N/A | N/A |

Chemical Composition (wt%), Aluminum Remainder

| LIMITS | Si | Fe | Cu | Mn | Mg | Cr | Zn | Ti | Pb | Bi | Zr | Ea | Tot |
|---------|------|------|------|------|------|------|------|------|-----|-----|-----|------|------|
| Maximum | 0.80 | 0.70 | 0.40 | 0.15 | 1.20 | 0.35 | 0.25 | 0.15 | NA | NA | NA | 0.05 | 0.15 |
| Minimum | 0.40 | 0.00 | 0.15 | 0.00 | 0.80 | 0.04 | 0.00 | 0.00 | NA | NA | NA | 0.00 | 0.00 |
| D30857 | .60 | .29 | .24 | .04 | .93 | .08 | .06 | .02 | .00 | .00 | .00 | .01 | .02 |

Applicable Requirements:

Description: OD: 0.5000"; Wall: 0.0580", Round @
 AMS4082P ~~AMS-WW-T-700/6C~~ ASTM B210-12 WW-T-700/6F
 WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.
 This Product Complies to FAR BAA, DFARS BAA, FAR TAA
 COMPLIES TO DIN EN 10204 JAN 2005
 No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
 MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA
 (DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5
 TRADE AGREEMENTS).

Plant Serial: 00026922
 Kaiser Order Number: 224733
 Line Item: 001

KAISER

ALUMINUM

FABRICATED PRODUCTS



CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentmidt, Quality Manager



MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304 fro. 750W.049
 DATE: MAR 21 2018

PO / BATCH NO.: 039293/SC153527

MATERIAL CERT REC'D: YES
 QUANTITY RECEIVED: 100
 QUANTITY INSPECTED: 100
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.049
 THICKNESS RECEIVED: W.049
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

| DESCRIPTION | NCR (Check Y/N) | COMMENTS |
|--|--|---------------------------|
| SURFACE DAMAGE | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| CORRECT FINISH | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| CORROSION | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| CORRECT GRAIN DIRECTION | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| CORRECT MATERIAL PER M-DRAWING | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | <i>Astm A213</i> |
| CORRECT THICKNESS | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| PHOTO REQUIRED | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| CORRECT REF # TO LINK CERT | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | <i>Heat # N170711A510</i> |
| CORRECT MATERIAL IDENTIFICATION | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| CORRECT M# ON THE MATERIAL | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |
| DOES THIS REQUIRE AN EXTRUSION REPORT | <input checked="" type="checkbox"/> Y <input type="checkbox"/> N | |

| CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW | | | | | |
|--|-----|-----|-------|-------|---------|
| TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING | HRC | HRB | DUR A | DUR D | WEBSTER |
| | | | | | |
| | | | | | |

testers located in the Quality Office

| QC 18 INSPECTION | ENGINEERING SIGNOFF (if required) |
|--|-------------------------------------|
| INSPECTED BY: <u>DAS</u> <u>11</u> DATE: <u>9-89 MAR 21 2018</u> | SIGNED OFF BY: _____ DATE: _____ |

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A269

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

| OD (IN) | PERMISSABLE OD TOL (IN) | PERMISSABLE WALL TOL |
|--|-------------------------|----------------------|
| UP TO $\frac{1}{2}$ | ± 0.005 | $\pm 15\%$ |
| $\frac{1}{2}$ TO $1\frac{1}{8}$, EXCL. | ± 0.005 | $\pm 10\%$ |
| $1\frac{1}{8}$ TO $3\frac{1}{8}$, EXCL. | ± 0.010 | $\pm 10\%$ |
| $3\frac{1}{8}$ TO $5\frac{1}{8}$, EXCL. | ± 0.015 | $\pm 10\%$ |
| $5\frac{1}{8}$ TO 8 , EXCL. | ± 0.030 | $\pm 10\%$ |

PART NUMBER:

M304TR | DDD | W | TTT |
OD | WALL |

WHERE "DDD" = OUTSIDE DIAMETER IN INCHES
AND "TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W.065

RELEASED
2/28/23 AM

| | | | |
|------------|--|----|----------|
| B | REFORMAT DWG. ADD SPECCS (ZN DB-1), REF PAR 08-020A | CP | 08-10-20 |
| A | NEW ISSUE | DS | 01.06.08 |
| REV | | BY | DATE |
| DESIGN | | | |
| DRAWN | | | |
| CHECKED | | | |
| MFG. APPR. | | | |
| APPROVED | | | |
| DE APPR. | | | |
| DATE | 08.10.20 | | |

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.
M304TR

TITLE
304/316 ROUND TUBING

SCALE
NTS

SHEET 1 OF 1

REV B

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MTCO

JIAXING MT STAINLESS STEEL CO.,LTD

MILL TEST CERTIFICATE

EN10204 3.1 CERTIFICATE

ISO 9001: 2008 TUV SUD CERT REGISTRATION No.: 01 100 095954
SALES CONTRACT NO.: M 49370276
COMMODITY: STAINLESS STEEL SEAMLESS PIPE
SPECIFICATION: ASTM A213-15c/ASTM A269-15a, ASME SA213-15 AVG WALL

CERTIFICATE NO.: 17MTC-102310
SALES CONTRACT NO.: M 49370276
COMMODITY: STAINLESS STEEL SEAMLESS PIPE
SPECIFICATION: ASTM A213-15c/ASTM A269-15a, ASME SA213-15 AVG WALL

| Steel Grade | Heat No. | Dimensions | | | Chemical Composition (W.T. %) | | | | | | Macroscopic Inspection |
|----------------|-------------|----------------|----------------|----------------|-------------------------------|-----------|------------|-----------------------------------|---------|------------------------|------------------------|
| | | O.D. [INCH] | W.T. [INCH] | Length (FT) | FT | Piece | Process | Delivery Condition | End Cut | Macroscopic Inspection | |
| TP304/304L | N170711AS10 | 3/4 | 0.049 | 20 | 5500 | 275 | Cold-Drawn | Annealed & Pickled & 320 Grit min | Passed | Passed | Passed |
| Element | C | Si | Mn | P | Cr | Ni | Mo | Ti | - | - | - |
| Requirements | ≤0.035 | ≤1.00 | ≤2.00 | ≤0.045 | ≤0.030 | 18.0-20.0 | 8.0-12.0 | - | - | - | - |
| Ladle Analysis | 0.017 | 0.34 | 1.32 | 0.027 | 0.001 | 18.13 | 8.01 | - | - | - | - |

Mechanical Properties

| Test Item | Y.S. (MPa) | T.S. (MPa) | El. (%) | Reduction of Area | Hardness | Cold Bend Test | Flaring Test | Flattening Test | P.M.I. TEST |
|--------------|-------------------|------------|---------|-------------------|----------|----------------|--------------|-----------------|-------------|
| Requirements | Rm _{0.2} | Rm | In2in | ≥35 | HRB | ≤80 | - | - | e=0.09 |
| Test Results | ≥170 | ≥485 | | - | | - | - | - | - |
| | 260 | 625 | 55 | - | 76 | Passed | Passed | Passed | Passed |

Non Destructive Tests

| | | | | |
|--------------|-------------------|------------|--------|--------------|
| Test Item | Eddy Current Test | ASTM E 426 | Passed | Prepared by: |
| Requirements | | | | Approved by: |
| Test Results | | | | |

Remarks:

- ASTM A213-15c ASTM A269-15a, ASME SA213-15 AVG WALL
- PIPES TESTED PER ASTM A1016
- SOLUTION HEAT TREATMENT: 1050 °C X 15m/min
- NO WELD REPAIR WAS PERFORMED.
- PMI TESTING DONE ON EACH PIPE - SATISFACTORY
- IN COMPLIANCE WITH NACE MR0175/ISO 15156-2015
- FREE FROM MERCURY CONTAMINATION
- MATERIAL IS FREE FROM RADIOACTIVITY
- VISUAL CHECK IS SATISFACTORY
- COUNTRY OF ORIGIN: CHINA

1 WE HERE BY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN TESTED AND THE TEST RESULTS ARE IN COMPLIANCE WITH THE TERMS OF THE PURCHASE ORDER OR CONTRACT.
2. THE CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE COMPANY.

